**CENG328 Operating Systems - Autumn 2017 Labwork 1**
**October 15 10:00 am – October 15 10:00 pm**
**Question 1 (10 pts)**
Write a program in C that takes two integers, M and N, as command line arguments and then saves a MxN matrix of random integers (0 - 100) in a file named "numbers.txt".

```
Sample Run:
$ ./question1 15 4
$ cat numbers.txt
78 32 18 19
43 91 27 99
11 46 33 30
...
```

Please save your files as numbers.txt and related C code as ID-Lab1Q1.c (e.g. 123456789-Lab1Q1.c).)
**Question 2 (10 pts)**
Write a program in C that stores 1000 random integers (100 – 1000), one on each line, in a file named "numbers2.txt". Then using shell pipes with "cat" and "grep" commands, find lines that contain numbers between 200 and 299. **Hint:** use regular expressions and search for lines beginning with 2.

```
Sample Run:
$ ./question2
$ cat [...] | grep [...]
258
244
...
```

Please save your files as numbers2.txt and related C code as ID-Lab1Q2.c (e.g. 123456789-Lab1Q2.c).)
**Question 3 (30 pts)**
Write a program in C that prints a 10x10 matrix of random integers (0 - 10000) on screen. Then using shell pipes, "sort" command and stream redirection, sort this output according to 3rd column and save the sorted matrix in a file named "sorted.txt". Save your file as ID-Lab1Q3.c (e.g. 12345689-Lab1Q3.c). Submit both your C code and terminal commands (as comment lines in your source code).

```
Sample Run
$ ./question3 432
5876 856 7887 ...
9135 17 342 398 ...
...
$ ./question3 [...]
$ cat sorted.txt
9135 17 342 398 ...
432 5876 856 7887 ...
```

You are obligated to send your answers to the **aybuceng305@gmail.com .** Do not forget to add yourID and lab code into your email as subject of the email (e.g. 123456789-Lab1). The submissions after send at 22:00 will not be graded.

Check List:

Your submission should include

For Question 1: numbers.txt, ID-Lab1Q1.c

For Question 2: numbers2.txt, ID-Lab1Q2.c

For Question 3: sorted.txt, ID-Lab1Q3.c